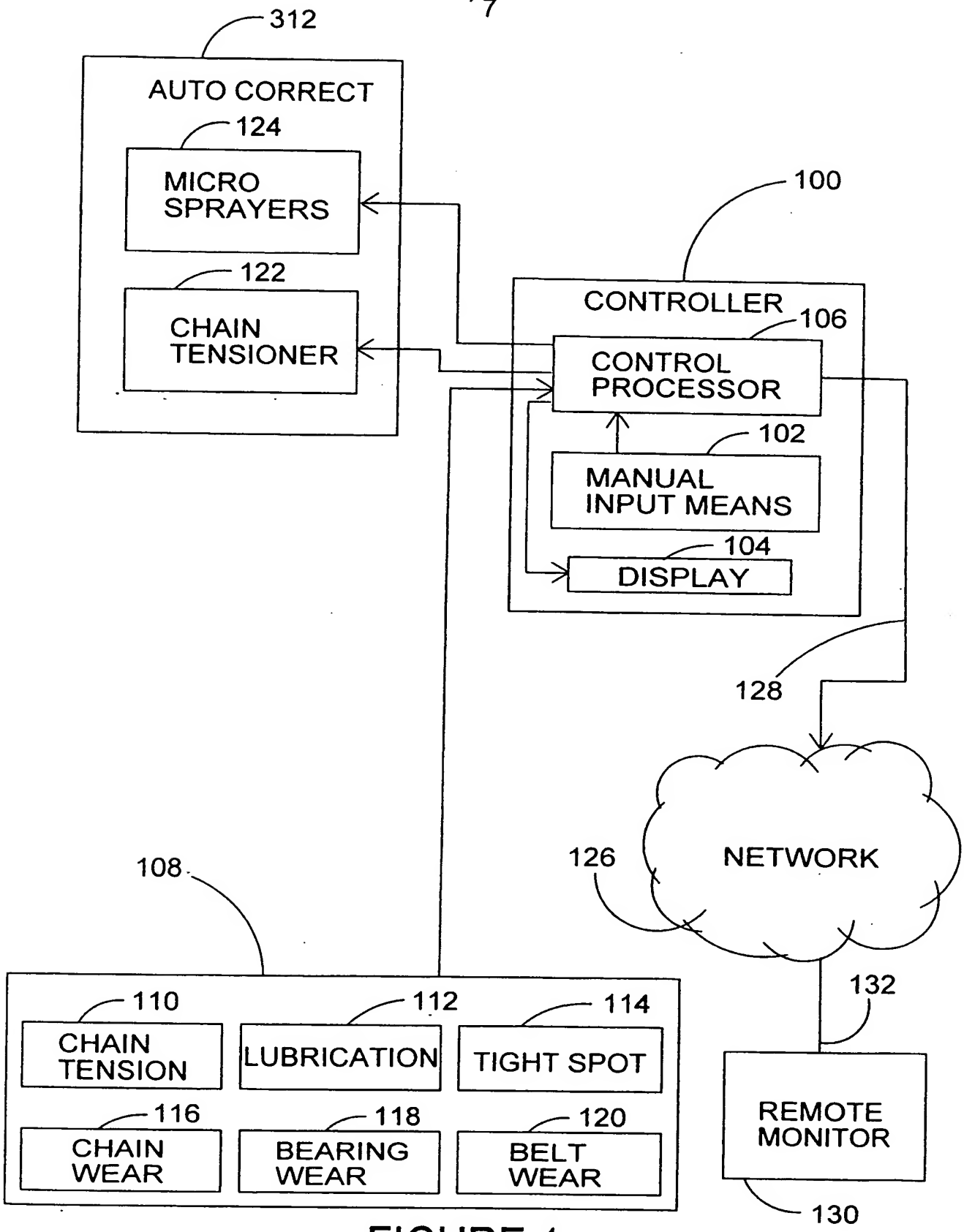
312
AUTO CORRECT
124
MICRO SPRAYERS
122
CHAIN TENSIONER
100
CONTROLLER
106
CONTROL PROCESSOR
102
MANUAL INPUT MEANS
104
DISPLAY
128
NETWORK
126
132
108
110
CHAIN TENSION
112
LUBRICATION
114
TIGHT SPOT
116
CHAIN WEAR
118
BEARING WEAR
120
BELT WEAR
REMOTE MONITOR
130

FIGURE 1

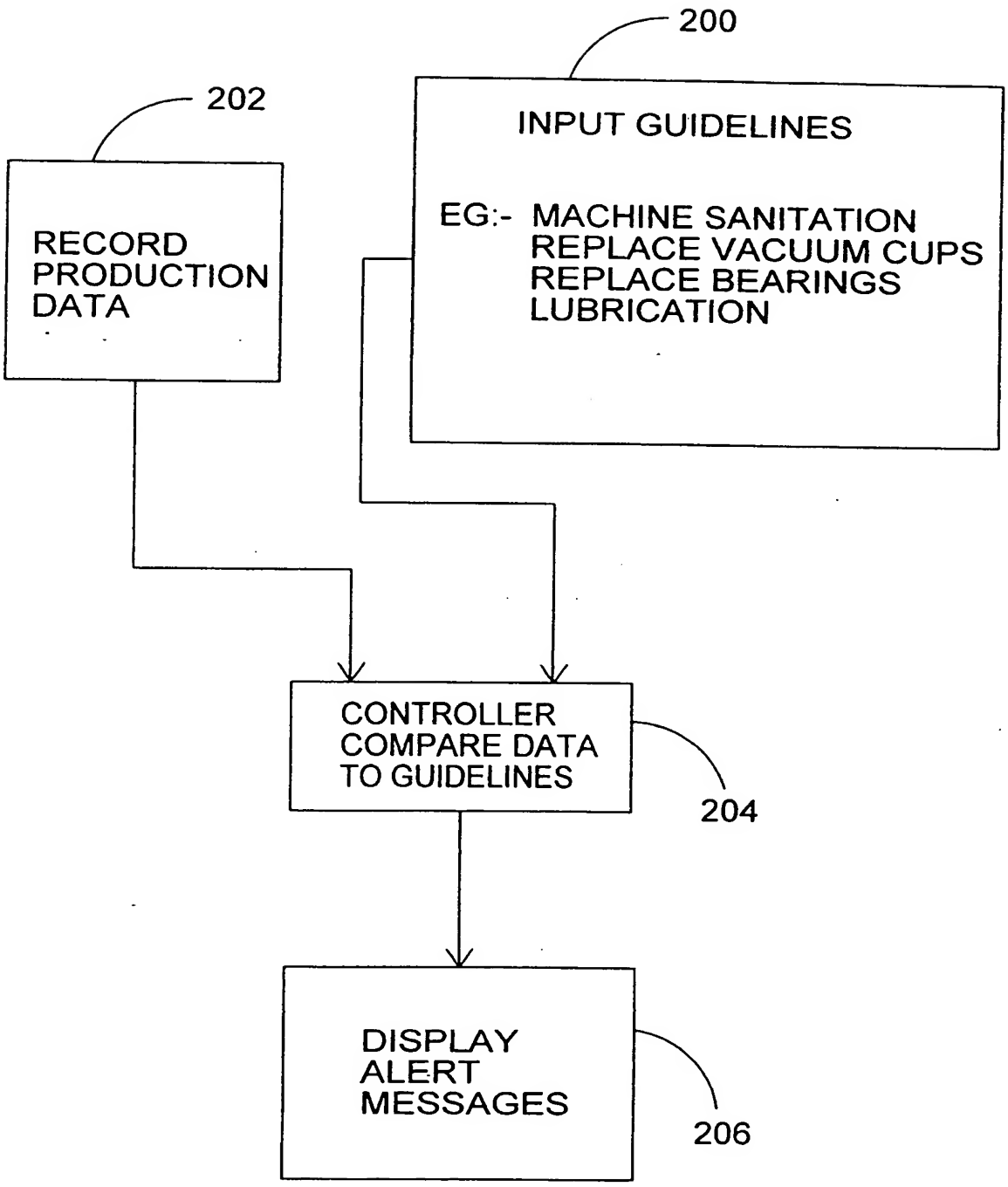
200
INPUT GUIDELINES
EG:- MACHINE SANITATION
REPLACE VACUUM CUPS
REPLACE BEARINGS
LUBRICATION
202
RECORD PRODUCTION DATA
CONTROLLER COMPARE DATA TO GUIDELINES
204
DISPLAY ALERT MESSAGES
206

FIGURE 2

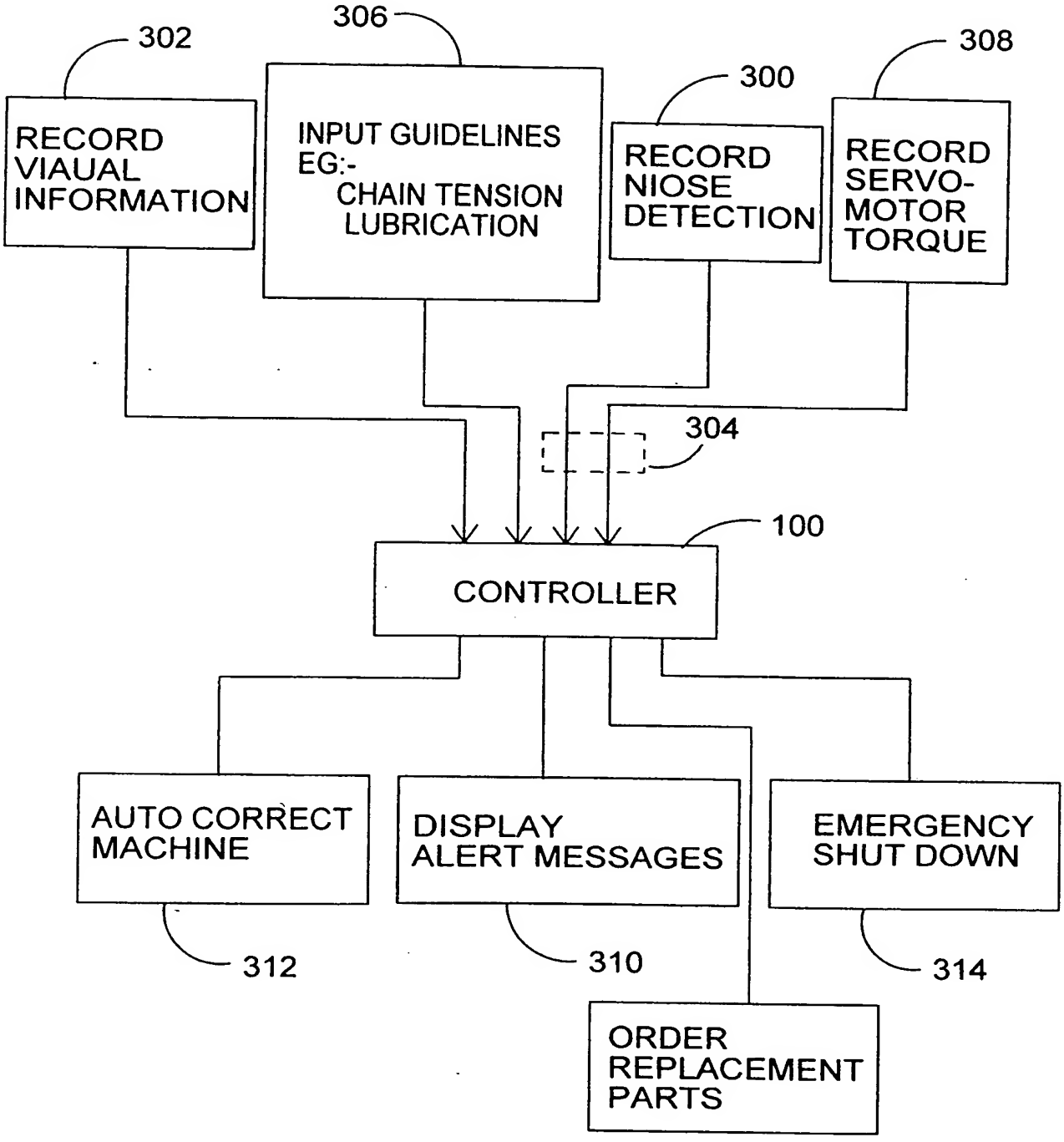
302
306
308
300
RECORD VIAUAL INFORMATION
INPUT GUIDELINES EG:- CHAIN TENSION LUBRICATION
RECORD NIOSE DETECTION
RECORD SERVO-MOTOR TORQUE
304
100
CONTROLLER
AUTO CORRECT MACHINE
DISPLAY ALERT MESSAGES
EMERGENCY SHUT DOWN
312
310
314
ORDER REPLACEMENT PARTS

FIGURE 3

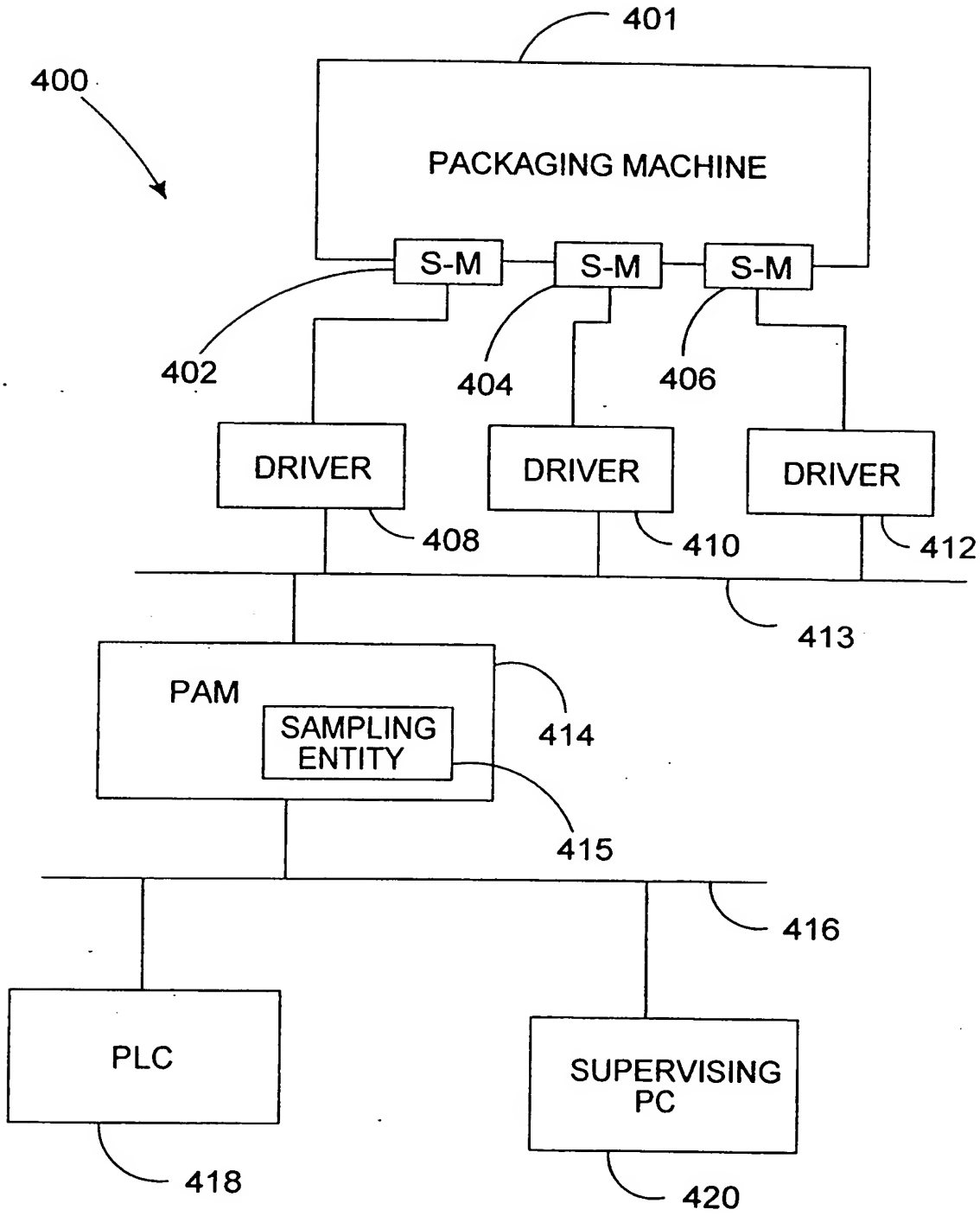
400
401
PACKAGING MACHINE
S-M
S-M
S-M
402
404
406
DRIVER
DRIVER
DRIVER
408
410
412
413
PAM
SAMPLING ENTITY
414
415
416
PLC
SUPERVISING PC
418
420

FIGURE 4

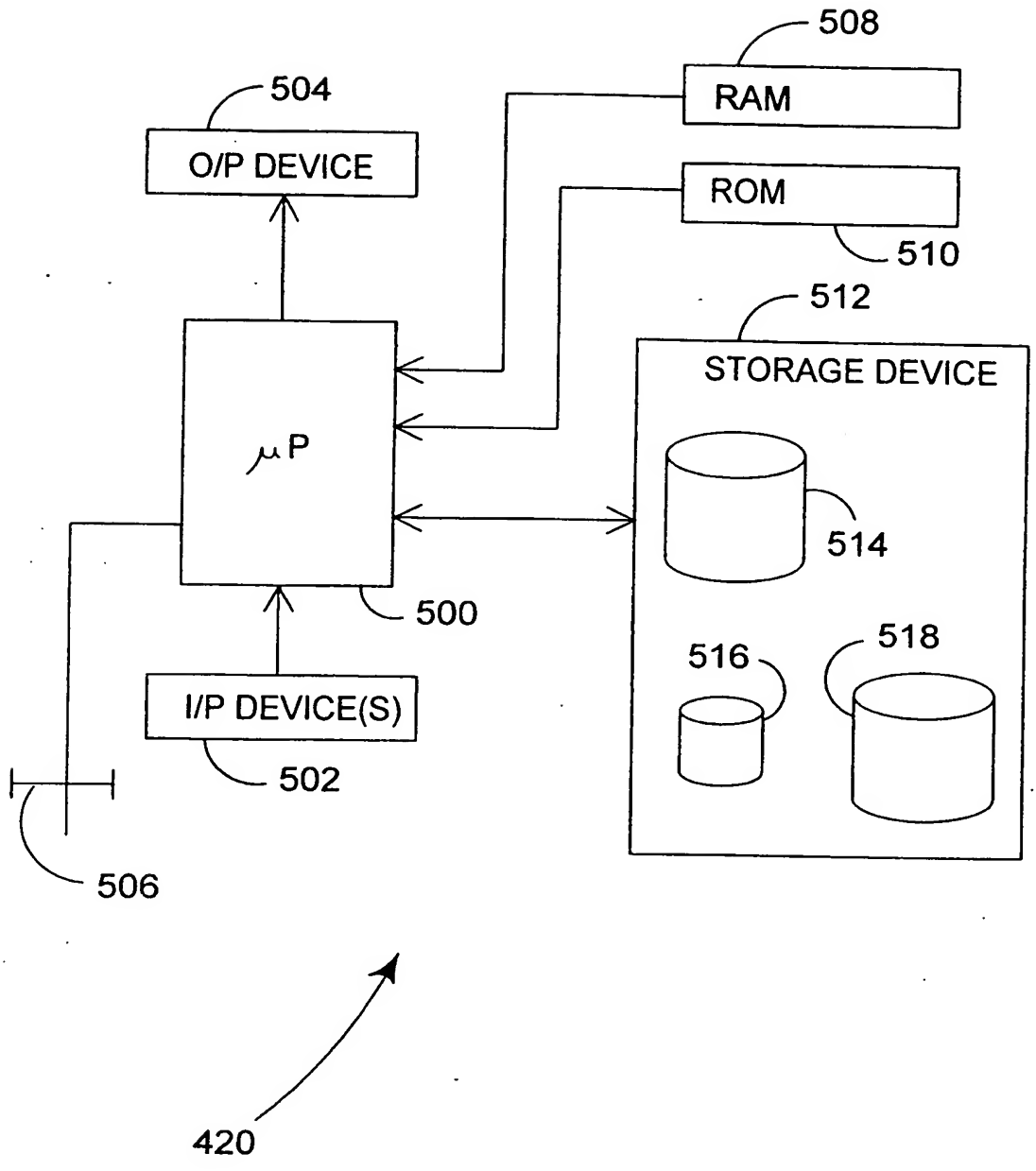
508
RAM
504
O/P DEVICE
ROM
510
512
STORAGE DEVICE
μP
514
500
516
518
I/P DEVICE(S)
502
506
420

FIGURE 5

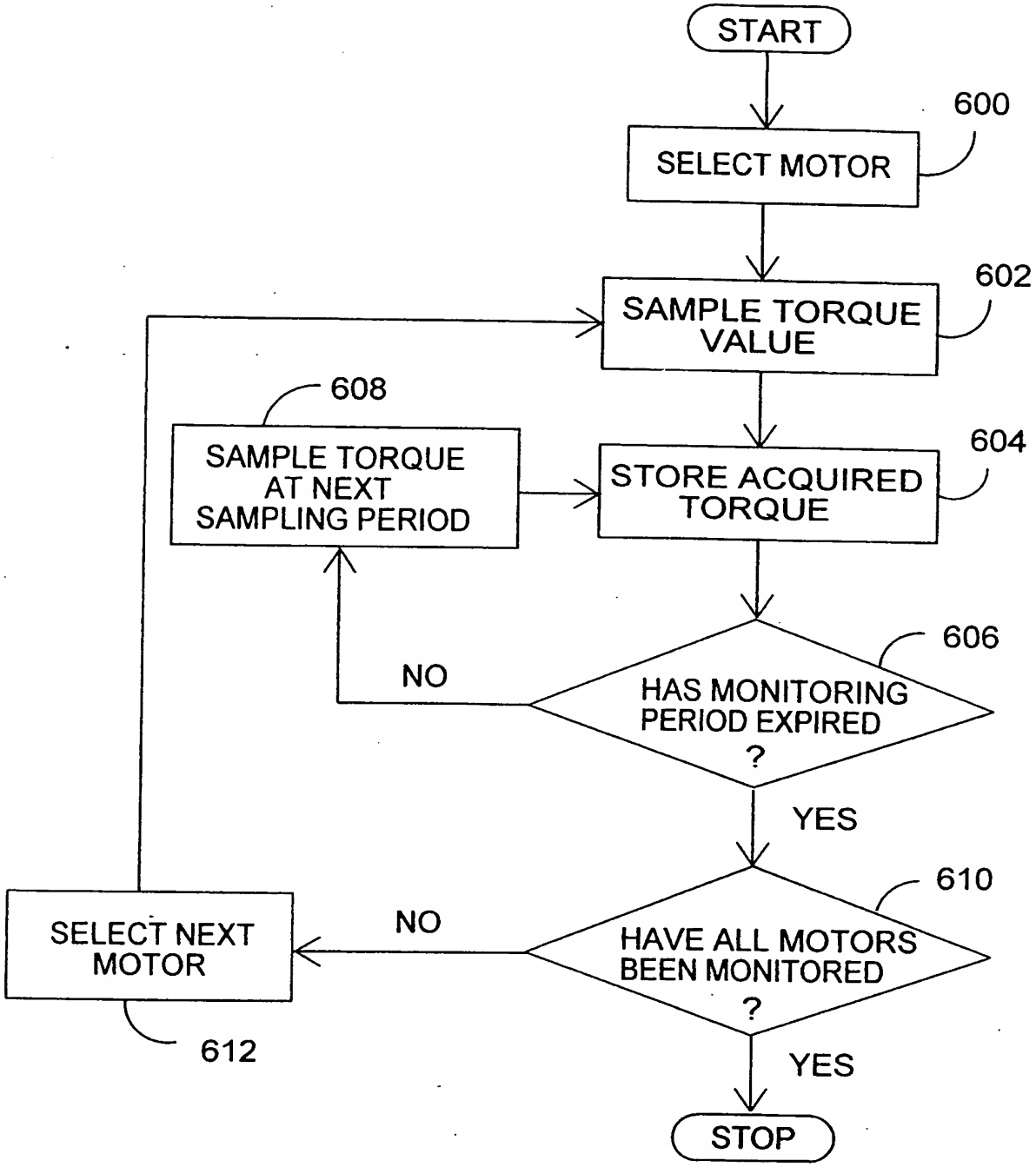
START
600
SELECT MOTOR
602
SAMPLE TORQUE VALUE
608
SAMPLE TORQUE AT NEXT SAMPLING PERIOD
604
STORE ACQUIRED TORQUE
606
HAS MONITORING PERIOD EXPIRED ?
NO
YES
610
HAVE ALL MOTORS BEEN MONITORED ?
NO
SELECT NEXT MOTOR
612
YES
STOP

FIGURE 6

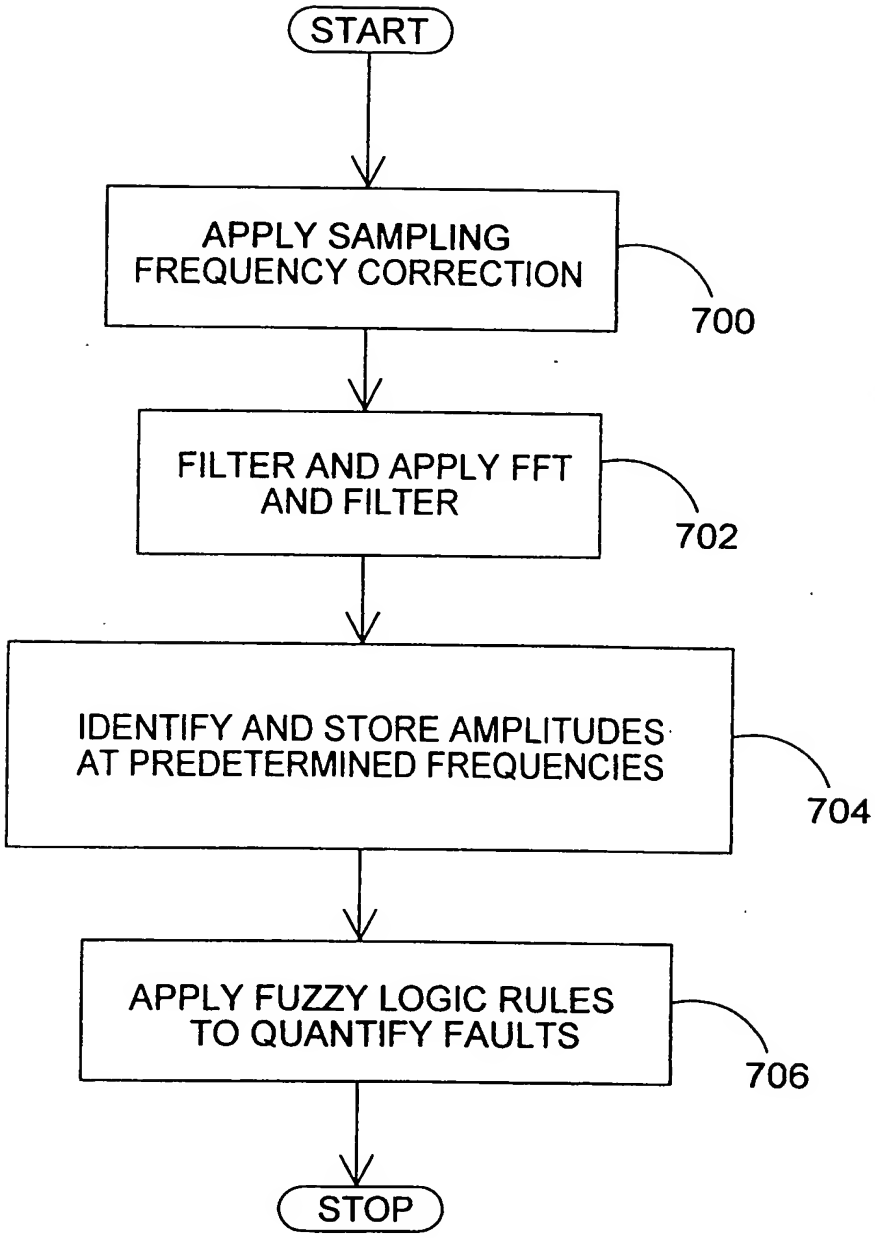
START
APPLY SAMPLING FREQUENCY CORRECTION
700
FILTER AND APPLY FFT AND FILTER
702
IDENTIFY AND STORE AMPLITUDES AT PREDETERMINED FREQUENCIES
704
APPLY FUZZY LOGIC RULES TO QUANTIFY FAULTS
706
STOP

FIGURE 7